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ABSTRACT

This study reports grade, gender, and environmental (school structure) differences in self-reported use of tobacco, alcohol, and marijuana among urban black adolescents. Among the results are the following: (1) an equal percentage of males and females reported having "tried" cigarettes and alcohol; (2) males reportedly smoked more cigarettes within a 30-day period than females; (3) an equal number of males and females reported drinking alcohol within the same period; (4) a much greater percentage of males reported having tried chewing tobacco and using marijuana; (5) examination of multiple use patterns of two or more substances revealed that females most often used cigarettes and alcohol in combination, and males preferred a combination of marijuana and alcohol or marijuana and cigarettes; (6) ninth grade senior high school students smoked considerably more than ninth grade junior high school students; and (7) the most significant increase in alcohol and marijuana use was evidenced between seventh and eighth grades, and eighth and ninth grades respectively. Age-appropriate intervention programs may need to consider ethnicity, school environment, and substance-specific initiation points. Data are presented on five tables. A 6-item list of references is included. (BJV)

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DEMOGRAPHIC AND SITUATIONAL VARIABLES INFLUENCING SUBSTANCE USE AMONG URBAN BLACK ADOLESCENTS

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DEMOGRAPHIC AND SITUATIONAL VARIABLES INFLUENCING SUBSTANCE USE AMONG URBAN BLACK ADOLESCENTS

Research consistently indicates that adolescent substance use is significantly affected by the psychosocial factors of peer use, beliefs about the consequences of using, and relationships with parents (Brunswick, 1977; Sobel, Sokis, Graham & Hansen, 1983; Moody-Thomas, Doherty & Wilcox, 1985). Because most studies have investigated patterns of use only among predominantly White middle-class populations, there is a paucity of information which characterizes initiation, prevalence and use trends within minority groups. The present study reports grade, gender and environmental (school structure) differences in self-reported use of tobacco, alcohol and marijuana among Black adolescents.

Method

The Oregon Research Institute Questionnaire (ORIQ) green form, a self-report instrument, was administered to a sub-sample of adolescents in Orleans Parish Public Schools. The questionnaire is comprised of items on cigarette, alcohol and marijuana use and exposure, parental and peer use, knowledge of health consequences of smoking, reasons for smoking, smoking intentions and educational aspirations. Thirty items representing the aforementioned categories were excerpted from the ORIQ and administered to 3654 students (413 Whites, 2748 Blacks, 155 Hispanics, 338 Asians). The sample was considered fairly representative of the public school system student body, with a slight underrepresentation of Blacks and a corresponding overrepresentation of Asians. Of the Black adolescents surveyed, 51.3% were females; 19.3%, 14.6%, 19.9%, 24.6%, 16,6% and 5.1% were in grades 7-12 respectively.

Statistical Analyses

A variety of statistical analyses were performed on this data. Specifically, descriptive statistics were used to characterize rate, prevalence and use trends. Chi square tests of homogeneity and one-way analyses of variance were conducted to determine if significant gender, grade or environmental differences in tobacco, alcohol and marijuana use existed.

Results

Basic demographic data on the population as a whole has already been presented in the previous Methods section. Results related to situational variables will be presented next. Following this, data analysis has been organized according to substance use: tobacco, alcohol and marijuana. For each substance, incidence rates are discussed, followed by a description and comparison of substance

users and nonusers of that substance. Finally, multiple users are briefly described and discussed (i.e., users of two and three substances).

I. Population of Black adolescents

Situational Variables

Situational variables included the smoking status of mother, father and best friend; the number of five closest friends who smoked, and whether they had been around an adult, male friend or female friend who smoked.

Thirty-seven percent (37%) of the students reported that their mother smokes and 48% reported that their father smokes. 59% of the students reported they had been around an adult who smoked. There was, however, a significant gender effect, with 53.7% of the males compared to 63.9% of the females stating they had been around an adult who smokes ($X^2=27.77$; $p<0.0001$).

Seventeen percent (16.7%) reported that their best friend smokes. There was a significant gender difference with more males reporting that their best friend smokes (19.9%) than females (13.7%), ($X^2=17.81$; $p<0.0001$). 9.5% reported they had been around a female friend who smokes; there was a significant gender effect (Males: 6.4%; Females: 12.4%; $X^2=25.97$; $p<0.0001$). 11.2% reported they had been around a male friend who smokes; there was no significant difference between males and females.

II. Incidence of substance use

Tobacco:

Thirty six percent (35.8%) of the students reported they had tried cigarettes on at least one ocassion. There was no significant difference between males and females in the proportion that had "ever tried" cigarettes ($X^2=0.35$; $p=0.55$).

There was a significant grade effect in the proportion that had tried cigarettes (see table I). This table also shows the increases from one grade to the next; the highest increase was noted going from 8th grade to 9th grade in a senior high setting (16.9%).

Twelve percent (12.1%) of the total sample reported they had smoked one or more cigarettes in the last month. There was a significant grade effect in reported cigarette use in the last month ($X^2=38.47$; $p<0.0001$) Table I shows this distribution by grade; the largest increase is found in the transition from 8th grade to 9th grade-senior high setting (6.6% increase).

The students were also asked whether they had ever tried chewing tobacco. No significant grade effect was observed for this variable ($X^2=4.67$; $p=0.59$), with 5.9% of all students stating they had tried chewing tobacco. A significant gender difference was observed, with 9.9% of the males vs. 2.3% of the females stating they had tried it ($X^2=68.04$; $p<0.0001$).

Cigarette smokers

For the purposes of this analysis, those students who reported smoking one or more cigarettes in the past month were classified as smokers. There was no gender difference in the ratio of males to females smokers (52.4% males, 47.6% females).

The average number of cigarettes smoked in the past month among the "smokers" was 19.12 ($\pm$30.6). A One way Anova revealed a significant gender effect. On the average, males smoked more cigarettes than females (males=22.33; females=15.52); F=3.99, p=0.0466).

A significant grade effect was also found (F=3.962; p=0.0008). Although this effect was expected as a factor of age, of particular importance was a noted difference between 9th graders according to school environment. Those 9th grade students in a junior high setting reported smoking an average of 4.75 cigarettes per month, and those in a senior high setting an average of 22.72. When contrasting junior vs. senior high school setting for all grades, a significant school effect was found. The average number of cigarettes smoked per month by students in the junior high settings was 5.29 as compared to 22.2 for students in a high school setting (F=15.35, p=0.0001).

There was a significant difference between smokers and nonsmokers and the smoking status of their parents. 46.5% of the smokers reported their mother smokes, vs. 35.6% of the nonsmokers (X^2=14; p=0.0002); 58.3% of the smokers reported their father smokes, vs. 46.2% of the nonsmokers (X^2=16.2; p=0.0001).

However, the largest significant difference between smokers and nonsmokers was found to be the reported proportion of best friends that smoke. 47.8% of the smokers reported that their best friend smokes, vs. 12% of the nonsmokers (X^2=257; p<<<0.0001).

There was no significant difference between smokers and nonsmokers in exposure to adult smoker, with 59% reporting they had been around an adult who smokes (X^2=0.4; p=0.53)

There were significant differences found between smokers and nonsmokers in relation to peers who smoke. 32.9% of the smokers reported they had been around a female friend who smokes vs. 5.3% of the nonsmokers (X^2=255; p<<<0.0001). 29.1% of the smokers reported they had been around a male friend who smokes vs. 8% of the nonsmokers (X^2=115; p<<0.0001).

Alcohol:

Sixty-two percent (62.1%) of the students reported trying alcohol on at least one ocassion. There was no significant difference in the proportion of males and females that had tried alcohol (X^2=1.76; p=0.18).

There was a significant grade effect (see table II). The largest increase was observed between 7th and 8th graders (10.3%).

Thirty-seven (37.3%) of the students reported they had had at least one drink in the last month. There was a significant grade effect for this variable (X^2=70.13; p<0.0001). Table II shows this distribution by grade.

Alcohol drinkers

Those students who reported drinking alcohol on one or more ocassions in the past month were classified as alcohol drinkers. An equal number of males and females reported drinking alcohol in the last month.

Of those students who reported drinking alcohol within the last month, the average number of times they drank was 4.8 ($\pm$9.3; range 1-99). These results need to be interpreted cautiously as the phrasing of the question in the survey was ambiguous, and there are some doubts as to whether the students were stating the number of times they drank or the total number of drinks they had.

Although small, One way ANOVA revealed a significant gender effect in the "amount" of alcohol the students reported drinking in the last month [males=5.91; females=3.6; F=14.32, p=0.0002].

There was a significant grade effect in the amount of alcohol consumed last month (F=2.14, p=0.046). There was a significant school environment effect in the amount of alcohol consumed last month (F=5.58, p=0.018).

Marijuana:

There was a significant gender difference in the proportion of males and females that reported trying marijuana, with 24% of the males and 17.1% of the females stating they had tried marijuana (X^2=18.75; p<0.0001).

There was a significant grade effect for this variable (see table II). The highest increase was observed between 8th grade and 9th grade; there was no difference in the 9th graders between those in jr. high and those in sr. high.

Eleven percent (10.7%) of the students reported they had smoked marijuana on at least one ocassion in the past month. There was a significant grade effect, (X^2=68.18; p<0.0001). Table III shows this distribution by grade. There was a significant difference between males and females, with 14.5% of the males stating they had smoked marijuana in the last month, compared to only 7.0% of the females (X^2=36.33, p<0.0001).

Marijuana users

Those students who reported smoking marijuana on at least one ocassion in the past month were classified as "users".

Of those who reported having smoked marijuana last month, a greater percentage were males (61.7% males, 38.3% females). A significant gender effect was also found for the amount of marijuana the students reported using [males=17.6; females=9.94; F=5.84, p=0.016].

The average number of times the students reported smoking marijuana within the last month was 15 ($\pm$25). Again, this question was phrased ambiguously and there are some doubts as to whether the students were reporting the number of times they smoked, the number of marijuana cigarettes they smoked or the number of hits they took.

A nonsignificant grade effect was found for the amount of marijuana used in the last month (F=1.17, p=0.32). However, there was a significant school environment effect for the amount of marijuana use in the last month [junior=6.11; senior=16.3; F=5.12, p=0.024].

III. Multiple Users

Table IV illustrates the distribution of males and females for each number of substances used. Overall, 57.5% of the sample reported using no substances at all in the last month; 28.5% reported using one substance only, 9.3% using two substances, and 4.7% using all three substances (cigarette, alcohol and marijuana). There was a significant gender difference for multiple users, with females more likely to use either no substances or one substance only ($X^2=19.53$; $p=0.0002$).

For those using one substance only, alcohol was the most popular substance. 9.2% reported using cigarettes only, 85.2% used alcohol only and 5.5% used marijuana only.

For those using two substances, cigarettes and alcohol was the most popular combination. 51.3% used cigarettes and alcohol, 10.1% used cigarettes and marijuana and 38.6% used alcohol and marijuana. Males were more likely to use combinations involving marijuana than females. Of those using two substances, 59.8% of the males used either marijuana and alcohol or marijuana and cigarettes, compared to 34.7% of the females; females were more likely to use cigarettes and alcohol (65.3% of females, 40.1% of the males). This results reaffirm the previous findings of significant gender differences in the use of marijuana.

School environment was found to be a significant factor in the number of substances used ($X^2=90.1$; $p<0.0001$). 69.4% of the students in the junior high environment and 51.5% of the students in the senior high environment reported using no substances; 23.8% of the junior high students and 30.9% of the students in the high school environment reported using one substance; 5.7% of junior high students and 11.2% of senior high students reported using two substances; 1.2% of junior high students and 6.4% of senior high students used all three substances.

Of those using at least one substance, most students were likely to use only one substance in both school environments (77% of those in junior high, and 64% in high school). 18.5% of the users in junior high reported using two substances, compared to 23.1% of the users in senior high. Only 3.9% of the users in junior high reported using all three substances, compared to 13.2% of the users in a senior high environment.

In the above analysis, combinations of substances used were collapsed across grades due to the fact that when broken down into each individual combination by grade, the resulting sample size was small, making significant analysis difficult.

Discussion

There was no across-the-board gender difference associated with substance use. Males and females did not differ with respect to ever having "tried" cigarettes and alcohol. However, males reportedly smoked more cigarettes within the past 30 days while an equal number of males and females reported drinking alcohol within the same time period. This was consistent with the finding that among one substance users, alcohol was the most preferred. Although in the expected direction, experimentation and use patterns for chewing tobacco and marijuana evidenced marked gender differences; a much greater percentage of males reported having tried chewing tobacco and using marijuana.

Examination of multiple use patterns (two or more substances) confirmed the popularity of cigarettes and alcohol in combination for females while males tended to prefer a combination of marijuana and alcohol or marijuana and cigarettes.

It is interesting to note the significant effects of school environment and grade; 9th grade senior high students smoked considerably more than 9th grade junior high students, while the most significant increase in alcohol and marijuana use was evidenced between 7th and 8th grades and 8th and 9th grades, respectively.

Findings associated with other situational variables (e.g., smoking status of parents and friends) were consistent with numerous other studies which have considered such factors (Mittelmark et al, 1987; Gordon, 1986; Sussman et al, 1987). Preliminary analyses of these data provide us with insight into the experimentation and substance use patterns of Black adolescents. While a further comparison of these factors across ethnic groups is warranted, current findings suggest that age-appropriate intervention programs may also need to consider ethnicity, school environment, and substance-specific initiation points in order to maximize the desired effect.

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Table I: Cigarette use and exposure by grade

Grade	Have Tried	Increase	Smoked last month	Increase
7	17.3%		5.6%	
8	25.6%	8.3%	7.6%	2.0%
9-Junior	32.1%	6.5%	10.0%	2.4%
9-Senior	42.5%	16.9%	14.2%	6.6%
10	43.2%	0.7%	16.0%	1.8%
11	45.1%	1.9%	15.4%	-0.6%
12	41.3%	-3.8%	15.0%	-0.4%

Table II: Alcohol use and exposure by grade

Grade	Proportion	Increase	Drank last month	Increase
7	47.0%		26.3%	
8	57.3%	10.3%	28.5%	2.2%
9-Junior	66.7%	9.4%	31.3%	2.8%
9-Senior	61.1%	3.8%	33.7%	5.2%
10	69.4	8.3%	45.0%	11.3%
11	70.9%	1.5%	46.4%	1.4%
12	69.8%	-1.1%	42.5%	-3.9%

Table III: Marijuana use and exposure by grade

Grade	Have Tried	Increase	Used last month	Increase
7	5.2%		3.3%	
8	10.4%	5.2%	3.5%	0.2%
9-Junior	22.2%	11.8%	9.9%	6.5%
9-Senior	19.9%	9.5%	10.6%	7.1%
10	28.3%	8.4%	15.3%	4.7%
11	31.9%	3.6%	15.1%	-0.2%
12	29.7%	-2.2%	14.1%	-1.0%

Table IV: Number of substances used by gender

	Gender		
	Male	Female	Total
No substances	55.2%	59.6%	57.5%
One Substance	27.7%%	29.3%	28.5%
Two Substances	10.9%	7.9%	9.3%
Three Substances	6.1%	3.3%	4.7%

Table V: Number of substances used by school environment

	Gender	
	Junior	High
No substances	69.4%	51.5%
One Substance	23.8%	30.9%
Two Substances	5.7%	11.2%
Three Substances	1.2%	6.4%